

PATENT ABSTRACTS OF JAPAN

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IGA HIROYUKI**(54) SUPPORT SYSTEM FOR SELECTING PROGRAM AND/OR INFORMATION****(57)Abstract:**

PROBLEM TO BE SOLVED: To obtain a system where program information is retrieved and displayed seamlessly over the border of broadcast media and distribution media in the case of program retrieval.

SOLUTION: The selection support system extracts a keyword corresponding to individual program information or program relating information for each broadcast service or distribution media based on a keyword and generates an integrated program information database based thereon, evaluates a program in response to the preference of users and generates and displays unified program information over the respective media.

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CLAIMS

[Claim(s)]

[Claim 1] a radical [information / relevant to the received program] -- carrying out -- a program and a means to build an informational selection screen again, and said selection screen -- using -- a program -- and -- or with a predetermined retrieval means, when informational selection is directed by the user Or the related information in other media relevant to information is also acquired. said selected program -- and -- the program based on the information which made the whole new related information and gave predetermined priority to said new related information -- and -- or the program which displays an information selection screen -- and -- or the program characterized by having an informational information selection screen-display means -- and -- or informational selection exchange equipment.

[Claim 2] a radical [information / relevant to the received program] -- carrying out -- a program and a means to build the informational information selection display screen again, and said selection screen -- using -- a program -- and -- or with a predetermined retrieval means, when informational selection is directed by the user Or the related information in other media relevant to information is also acquired. said selected program -- and -- the program based on the information which made the whole new related information and gave predetermined priority to said new related information -- and -- or the program which displays an information selection screen -- and -- or with an informational information selection screen-display means said program -- and -- or the information relevant to the program chosen based on the informational information selection screen-display means -- repeating -- acquiring -- the program concerned -- and -- or the program characterized by providing the means used as an object for informational assessment -- and -- or informational selection exchange equipment.

[Claim 3] the program according to claim 1 or 2 characterized by said related information containing at least one of the channel of a program, the content description sentence of a program, the program name of a program, the start time of a program, and the genres of a program -- and -- or informational selection exchange equipment.

[Claim 4] Said media besides the program retrieval information included in a program at the control signal part by which accompanying transmission is carried out as other media The program information encoded between the vertical blanking intervals of a video signal, Program information acquirable from on the Internet and related contents, CD-ROM, The program information acquired from the package media distributed by service providers, such as a digital videodisc (DVD), the program according to claim 1 or 2 characterized by including at least one of data broadcasting transmitted [independent] with the program planned from now on -- and -- or informational selection exchange equipment.

[Claim 5] Said information selection screen-display means is program retrieval equipment according to claim 1 or 2 characterized by retrieving the program information which suited the taste automatically and continuously unitary from said media which can be searched when the pattern matched with a desired keyword or a desired keyword is chosen as said related information once [at least].

[Claim 6] the program according to claim 1 or 2 characterized by to retrieve automatically and continuously the program information which said information selection screen-display means acquired and considered the information based on the actuation for the information selection which the user performed in the past with the gestalt of a keyword, learned a user's taste, and suited the taste unitary from said media which can search -- and -- or informational selection exchange equipment.

[Claim 7] the program according to claim 1 or 2 characterized by the adaptation judging which is the keyword which is the related information which said retrieval means uses being what obtained using the text of the text part centering on the content description sentence of a program -- and -- or informational selection exchange equipment.

[Claim 8] the program according to claim 1 or 2 characterized by having the means equipped with the unified keyword common irrespective of a program information-item format of each media as a database in order to memorize the keyword which is the related information which said retrieval means uses -- and -- or informational selection exchange equipment.

[Claim 9] the program according to claim 1 or 2 characterized by performing priority attachment of program information with the frequency of occurrence of the keyword contained in program information in the program information which suited said keyword -- and -- or informational selection exchange equipment.

[Claim 10] each with which said each media are equipped as standard -- the program according to claim 1 or 2 characterized by having a program information-display means to display a program information screen on media in an automatic and continuously common format unitary not related apart from the program information-item display format of a proper -- and -- or informational selection exchange equipment.

[Claim 11] the program according to claim 1 or 2 characterized by for other

alphabetic characters changing a foreground color, a font, an alphabetic character attribute, and a condition, and distinguishing and displaying the character string which can serve as a keyword on said program information screen using the effectiveness on vision — and — or informational selection exchange equipment.

[Claim 12] the program according to claim 1 or 2 characterized by to attach, distinguish and display on a keyword the mark which the semantics and extent of taste can guess easily automatically to the keyword which a user is fond to a keyword candidate, and already comes out before, or is performing that setting out which is not liking on said program information screen — and — or informational selection exchange equipment.

[Claim 13] the program according to claim 1 or 2 characterized by indicating the media of the program which can be searched by list on said program information screen — and — or informational selection exchange equipment.

[Claim 14] Said program information retrieval means is program selection exchange equipment according to claim 1 characterized by having a thesaurus database for synonym acquisition after a synonym and resemblance, adding the related resemblance keyword about a retrieval setting-out keyword, and performing program information retrieval.

[Claim 15] Said program information retrieval means is program selection exchange equipment according to claim 1 or 2 characterized by fluctuating in adjustable and narrowing down a retrieval keyword even to the number of cases of a request of the offered information automatically according to the number of retrieval data.

[Claim 16] The remote control unit for performing said program information retrieval is program selection exchange equipment characterized by having a display means by which only a candidate's carbon button which the location of the carbon button on a remote control unit is arrangement in alignment with the flow of actuation, and then should be operated makes it intelligible to differ from other carbon buttons clearly.

DETAILED DESCRIPTION

[Detailed Description of the Invention]

[0001]

[Field of the Invention] this invention — a program — and — or the program which carried out automatic retrieval of program information, program related information, additional information from a medium used as the broadcasting station which serves as all possible objects for program retrieval especially, or an information retrieval object, etc. about informational selection exchange equipment, and suited liking of a user — and — or it is equipment which built the informational selection screen and

improved a user's user-friendliness.

[0002]

[Description of the Prior Art] As it is in JP,9-146964,A or JP,7-162776,A, when retrieving program information etc. in a broadcast receiving set etc. conventionally, the program additional information by CD-ROM and the broadcast wave etc. has the individual retrieval for every single media.

[0003] However, many media have appeared in recent years. As media, there are various broadcast media from which a method differs or information media, a storage, etc. If a user is going to acquire a favorite program or information, there is the need for selection processings, such as program information, for every media.

[0004]

[Problem(s) to be Solved by the Invention] Although much media have appeared in recent years as described above, about each media, by the user having performed program retrieval, information sorting, etc., it is very inconvenient and time amount also becomes this thing.

[0005] then, this invention -- two or more media -- crossing -- seamless -- a program -- and -- or the program which searches information related information, carries out reference filing of the related information of these two or more media, and can be unified -- and -- or it aims at offering information selection exchange equipment.

[0006] Moreover, this invention is acquisition (acquisition, an extract, election) about the favorite keyword of users, such as a user's actuation hysteresis to a program performer. The program or information list (related information) which suited a user's selection inclination is built, and it enables it to obtain that information screen by carrying out and utilizing [accumulate and].

[0007] And it aims at a user enabling it to acquire the broadcast receiving set which can make easy the program over between much media, or information selection and an approach, a broadcast transceiver receiving set and an approach, program selection exchange equipment, and an approach.

[0008]

[Means for Solving the Problem] Or when informational selection is directed by the user, it is a predetermined retrieval means. a radical [information / relevant to the program in which this invention was received] -- carrying out -- a program and a means to build the informational display screen again, and said display screen -- using -- a program -- and -- said selected program -- and -- or the program based on the information which also acquired the related information in other media relevant to information, made the whole new related information, and gave predetermined priority to said new related information -- and -- or the program which displays an information selection screen -- and -- or it has an information selection screen-display means.

[0009] The retrieval which used the related information of the program doubled with

liking of a user or information over between much media with the above-mentioned means is realizable. Under the present circumstances, a user does not need to be conscious of the difference in media. moreover, the program of the large range to liking -- and -- or information is acquirable.

[0010]

[Embodiment of the Invention] Hereafter, the gestalt of implementation of this invention is explained with reference to a drawing. In this description, if vocabulary "the information relevant to a program" is the information supplied by record media supplied for EPG, such as information and CD-ROM, the information relevant to the program supplied from WWW (WorldWide Web), etc. and is the information about a program, it is good anything.

[0011] Drawing 1 is the block diagram showing the whole television channel selection equipment configuration concerning the gestalt of 1 operation of this invention. The broadcasting station 11 which uses an electric wave as a signal-transmission medium, the broadcasting station 12 which uses a cable as a signal-transmission medium, ISP (Internet Service Provider) 13 which uses the telephone line as a signal-transmission medium, and the digital videodisc (DVD) device 14 which uses a domestic bus as a signal-transmission medium are shown in drawing 1 as various kinds of media.

[0012] The broadcast wave which sends out the program from a broadcasting station side is not asked about cable wireless, but content explanation and program related information of a program have been multiplexed and sent with gestalten, such as text format, a html (hyper text markup language) format, and an image format.

[0013] A television set 100 has the tuner 101 which tunes in a receiving channel, and the decoding separation section 102 which separates the program information which decoded the program and was multiplexed by the program again. The picture signal decoded in the decoding separation section 102 is controlled by the program display-control section 103, and is supplied and displayed on a display (for example, the CRT section) 104. The program information separated in the decoding separation section 102 is inputted into the program assessment section 105 which calculates the priority of a retrieval result.

[0014] 110 is the keyword storage section which records databases, such as a retrieval keyword, program information, etc. based on a viewer's taste. This keyword storage section 110 is connected to the program assessment section 105. In relation to actuation of this program assessment section 105, the program display-control section 103 can be shown to a viewer from a program with a high priority.

Furthermore, the television set 100 is constituted including the remote control light sensing portion 106, TA (terminal adopter) for accessing the Internet etc. through the telephone line or the modulation recovery (following modem) section 107, and the home birth control section 108 for controlling the external instrument connected to television.

[0015] In addition, since the synchronous system which constitutes a television set,

the voice section, a power supply section, etc. are the same as that of the conventional TV apparatus, they are omitted by drawing 1 . Moreover, although the remote control unit 120 is equipped with the modulation section which carries out light modulation according to the remote control protocol from the various switches for television control, and a switch, it is omitted in drawing 1 .

[0016] The hardware configuration by the keyword storage section 110 of a television set, the program assessment section 105, and the program display-control section 103 is shown in drawing 2 . Implementation of the function is performed by performing the program in which the central processing unit (CPU) 201 was stored in the read only memory (ROM) 202 for a program.

[0017] CPU202 whose hardware is a microprocessor as shown in drawing 2 , The interface (henceforth, IF) circuit 203 for inputting dynamic-image information and program information from the decoding separation section 102 of drawing 1 , The random access memory 204 used as the workspace of the programs ROM201 and CPU201 which store a program (RAM), It has FRAM205 for keyword databases, and the database ROM 206 and VRAM207 for information displays for thesaurus (index equipped with classification word lexicon, synonym lexicon, etc. for information retrieval) retrieval, and each element is connected through the system bus 208.

[0018] Drawing 3 is the block diagram showing the detail of the program assessment section 105 of the television set concerning this invention and a keyword, the keyword storage section 110 that has memorized the program information database, and the program display-control section 103.

[0019] The program assessment section 105 evaluates how much the program concerned conforms to a viewer's taste for every program based on the keyword and program information which are accumulated in the keyword storage section 110, and calculates the assessment value.

[0020] For this reason, the program assessment section 105 is equipped with the assessment value operation part 303 for consolidating them and collating the program information corresponding to the keyword extraction section 301 for every broadcast media, the keyword frequency-of-occurrence addition section 302, and these keywords, and is constituted.

[0021] The keyword extraction section 301 extracts the character string which serves as a keyword candidate from program information using well-known technique, such as gestalt element analysis. The keyword frequency-of-occurrence addition section 302 integrates the duplication keyword which appeared for every program information, respectively (the ambiguous retrieval technique not only strict coincidence of a character code but in which collating of a keyword is well-known is applied).

[0022] The keyword collating operation assessment section 303 calculates a program assessment value from the keyword frequency of occurrence and each weighting multiplier using the below-mentioned performance index. The keyword storage section

(database) 110 memorizes the parameter for the program retrieval reflecting a viewer's taste (a keyword, weighting multiplier).

[0023] All keyword candidates match with a weighting multiplier, are put in a database, and can use for next retrieval. For this reason, the keyword storage section 110 matches and memorizes weighting ***** how many compatibility the program by which the keyword extracted from program information and this keyword are contained in program information has to a viewer's taste. And the program display-control section 103 displays each program based on the assessment value by the program assessment section 105.

[0024] By the way, generally various kinds of programs and EPG (program data utility) service which are rationed by package media, such as DVD, a CATV circuit, a tele circuit, and the broadcast wave for program image viewing and listening are available at home. If these services are described more concretely, it will be set to following 1-4 at least, for example.

[0025] 1) All information on the Internet sent from the access point of an Internet Service Provider firm, contents.

2) Program information incidental to all the programs transmitted by specific service (a vertical blanking period (VBI) multiple signal or SI signal).

[0026] 3) Program information on the format acquired from package media distributed by the service provider, such as CD-ROM and DVD.

4) The program planned from now on and data broadcasting transmitted in parallel.

[0027] This invention is divided, receives the electronic program guide (EPG) from each service, it provides a user with it like single service, without being conscious of the difference in each troublesome service compartment, and aims at raising the convenience of the user at the time of program retrieval.

[0028] However, in these cases, the problem on management (business) also has the data format, screen-display configuration item, etc. as having EPG in which it is not unified into and all program data utility has common compatibility over the future, and, generally each EPG cannot consider them easily. That is, even if there may be possibility of the integration EPG in the same transport of the interior, such as a ground wave, and BS, CS, EPG which unified these and which interlocked unitary including distributed contents, such as CD-ROMs, such as a journal, and DVD, further is specifically unlikely to be realized.

[0029] However, although the number of the television screens as hardware will be one and where a channel and media are when it sees from a user side, it is good anyhow. That is, although a user's object is watching a favorite program, it accustoms and the actual condition has the problem which does not have to be carried out essentially that the complicated activity which may not be must be done, such as looking for a favorite program, applying time and effort to eye others according to an individual for every service.

[0030] Then, in this invention, program information is retrieved using the keyword

(related information) in which automatic recording was carried out by a user's program viewing-and-listening hysteresis, and automatic distinction of two or more media which can be searched is carried out. And a user's favorite program or information is retrieved to each media. Moreover, a user's taste information is learned and it enables it to extract automatically the contents in which the information which a user wants to see is included.

[0031] Thereby, it can provide as the one program information source integrated when seeing from the user about all programs with an accessible user, the program information, and program information search services (from the keyword train extracted out of the text of EPG regardless of an information format and protocol of each service to assessment). Without being conscious of the difference in service, it can receive, and a user can compose and can get the guide of a program or information unitary over each service.

[0032] Difficulties in case a user retrieves the program information offered from various service providers in predetermined time amount with the keyword database containing this user's taste information are reduced remarkably.

[0033] Moreover, in a Prior art, favorite setting out of a user must be theoretically performed to TV device side by a certain input means and the approach (an intentional and unconscious target is not asked) itself [user]. in this case , in order to demonstrate function sufficient by approach which be consider conventionally , an initial configuration complicated before the beginning of using of a device and huge , i.e. , a keyword (user taste information) input , be a need (this invention be also possible by arbitration setting out of a user) , and a user burden will be finish with the result seldom use after all , even if it be large and the engine performance of that retrieval system itself be high .

[0034] Moreover, when a retrieval result became a huge amount, the user needed to extract favorite contents out of it. A favorite program can be discovered without according to this invention, accumulating liking of a user in a nature and device (automatically) side as a keyword, and being conscious without special initialization (most number of keyword assignment being carried out by the conventional equivalent retrieval in this case) of especially program retrieval actuation, if the user is viewing and listening to a program.

[0035] Moreover, with the equipment of this invention, to the keyword candidate in the description sentence in EPG currently displayed on the screen, oneself [user], it can choose [a favorite keyword and] directly whether it is liking, and it can also carry out program retrieval on that spot.

[0036] In addition, the DS from each service provider or information data feed (sent-in data), the communications protocol with each interface, etc. are boiled, therefore the conventional information is used.

[0037] if preliminary knowledge is given about the DS and the communications protocol for each service, respectively -- the program information from each service

-- probably -- ** -- it is natural for it to once be buffered in a format of its separate dedication (are recording), and to also make it display on the service originally -- although it is possible, from a user side, each service is unified and it is usually displayed as a program menu from an information pool unitary exceeding media. Therefore, a user can acquire the program information offered from such a seemingly single program information database.

[0038] Next, the example of retrieval by keyword is explained with reference to drawing 4 , drawing 5 , drawing 6 , drawing 7 , and drawing 8 . Moreover, the simplest example of retrieval actuation and assessment value calculation of program information is explained. Drawing 4 is explanation of a program selection screen and the so-called usual EPG screen.

[0039] First, it is on remote control in order for a user to display usual EPG in choosing a program. "EPG" A carbon button is pushed. The usual program guide matched with a channel as this shows to drawing 4 , and televising time amount is displayed.

[0040] Based on this race card, a user operates the cursor carbon button on remote control, and chooses a desired program with a decision carbon button. Then, as shown in drawing 5 , a desired program is displayed and the description sentence about the content of a program and channel name other than a program image are displayed.

[0041] A user should just view and listen as it is, if the displayed program is pleasing, if he is the program which is not pleasing, he returns to the aforementioned race card, and he should just repeat and choose a desired program again here.

[0042] In this case, if it continues viewing and listening to that program fixed time a user to be (in this case), it will be, The rate of as opposed to [to all programs / from the first] the televising time amount of the program concerned in simple elapsed time, that is, you may take into consideration by what% the whole program viewed and listened, and various setting out is possible -- it is recognized as the program being a program included in a user's mind, and storage are recording of the related information about the program concerned is carried out as a keyword at the keyword storage section 110.

[0043] In this case, the information according [time amount] to the time zone of a day and a day of the week is taken into consideration in the form of weighting. Moreover, what can use a genre, a program name, the content of a program, etc. effectively only as a mere keyword according to each language property purely, respectively uses.

[0044] Drawing 6 is drawing for explanation of a continuation EPG screen. Next, the retrieval by the continuation EPG screen is also the description section of this invention. The actuation for starting this retrieval is explained. First, while the viewer who is going to do program retrieval is doing the aforementioned usual EPG actuation (of course and the time of having not carried out are sufficient), the search mode of

Continuation EPG is started by choosing the continuation EPG on the screen of drawing 5 , or pushing the continuation EPG carbon button on remote control (referring to drawing 16).

[0045] Then, the retrieval means in the program assessment section 105 be display on a screen by make into a default program related information related with the keyword of programs to which it be view and listen best by the program retrieval to last time, such as an image of several favorite performer high orders as utilize a user taste information automatically stored as keyword information until now, for example, show in drawing 6 . (When a user's taste data are the initial state which is not stored yet, a program information screen is especially good anything.)

And a user is a continuation EPG initial screen (in this case, although classified as a volume for persons, if it is the noun which expresses taste, such as a sport team name, food, and the name of a place, to others, it is good anything.) which is this information selection screen. Moreover, it is not necessary to carry out a classification. The favorite "actor B" is chosen from the older candidate, and the decision (retrieval initiation, selection) carbon button of a remote control unit is pushed. (The keyword acquired by remote control actuation in drawing 6 is stored in RAM of operating.)

From this, the signal which shows that the retrieval initiation carbon button was pushed on the television set from the remote control unit is sent, and the retrieval means by this invention starts retrieval of program information.

[0046] in this case — the picture of "Actor B" — for example, — "Actor B" ** — the keyword to say matches — having — **** — retrieval means "Actor B" It considers as a keyword and it is begun to search the program on which "Actor B" is appearing from the inside of EPG (text browsing is used as a concrete approach).

[0047] Also in this case, a user is "Actor B" like the time of the usual EPG actuation. The information are fond is accumulated in television and it can profit as information for next program retrieval. It is simultaneously parallel or World by time sharing. Wide Contents are discovered by the keyword "Actor B" also by the search engine on Web.

[0048] Thus, the judgment function which judges a user's program palatability is prepared in the control section. And if the palatability is known, the functions including other media which search the program suitable for a user's palatability are prepared. And it is constituted so that the program selection screen suitable for liking of the user concerned may be built. Therefore, when performing such a function, a user's original ID may be inputted and saved and a race card may be created for every user who uses a device. The function which creates the global race card to further two or more users may be prepared.

[0049] Moreover, although the selection screen for whole media was created by *****, the function classified for every keyword in which the user specified the program information collected from each media is prepared, and you may enable it to obtain a whole media program selection screen from various directions. In order to

realize this function, it is possible by table-izing each program information and a keyword and memorizing them. Of course, updating and deletion of some contents are possible.

[0050] When also performing ambiguous retrieval in a program search, a thesaurus database is accessed, a related keyword group is extracted, and it stores in an activity RAM 204 similarly. Subsequently, a keyword candidate is acquired from the program information on each channel (text part of EPG) by the gestalt element analysis (program information is caught as each keyword, and is analyzed and classified) keyword.

[0051] The keyword of the program information loaded to RAM specified by a user with this extracted keyword candidate is measured, the addition accumulating totals of the congruous counts (the number of keywords contained in information) are carried out, and it considers as the assessment value of that program. (with [since the number of keywords is one in this case] a priority and no weighting multiplier) And the program database matched with the keyword is created. (The number of content of the keyword contained among each program information is also counted.) In addition to the corresponding keyword, the following items are included in this database. 0) The source of a program assessment value, one index (serial number), 2 program names (title), three channels (information required to be able to specify the source of the program source, such as a media class and a broadcast class), 4 broadcast time, five contents (description), a keyword candidate group with 6 content number (table), and 7 program information, a script required for 8 external-instrument control, etc.

[0052] Next, the most desirable program deduced from the past user's actuation information is displayed on a screen. Supposing a user views and listens to the shown program, weighting according to the viewing-and-listening frequency and time amount will be performed to a keyword. If it does not view and listen similarly, it will learn by carrying out negative weighting in the keyword relevant to the program.

[0053] an icon blinks to that to show that the broadcast media which are the objects for retrieval are accessing in it, simultaneously the screen of CRT. Moreover, the guide screen in which ***** retrieval accessed is shown may be displayed (refer to drawing 7).

[0054] Program information applicable to a favorite keyword is acquired from EPG information (pickup, listing), and the program information that a priority is high is shown. Or the random display from order with a low priority is sufficient by the liking at that time (refer to drawing 8). Drawing 8 attaches the number in order of media with a high retrieval priority. Moreover, the number of the media under retrieval is surrounded with a circle. Furthermore about the media of the outside for retrieval, it considers as different colors.

[0055] Next, a series of actuation of these retrieval is explained using a flow chart. Drawing 9 is flow chart drawing explaining retrieval actuation of the television channel

selection equipment in the gestalt of this operation.

[0056] First, in step S1, like drawing 6 , a favorite performer's photograph is put in order, it is displayed on the screen, and a user chooses a most favorite performer in it. And retrieval is started when a user pushes a retrieval initiation carbon button in step S2.

[0057] Next, a keyword candidate is extracted by approaches, such as gestalt element analysis, out of the text of EPG of each program information offered from each broadcast service at step S3. It collates with this keyword candidate and the favorite keyword specified by [above-mentioned] a user in step S4.

[0058] And when it is admitted that the keyword agreed in the following step S5, the agreement keyword number progressed and contained in step S6 is counted, the program information concerned is matched with the agreement keyword and its number, and it registers with a program information database.

[0059] Then, in step S7, an assessment value is computed by the performance index, and it sorts based on this in ranking with a high (the first time has many counts) assessment value. (The first time is sorted for the time being, although it is not necessarily the ranking of a user request) . And in the last step S8, the program information after an operation that an assessment value is the highest is shown to a user.

[0060] It is the flow chart which shows the actuation at the time of the program information re-retrieval used for drawing 10 when favorite program information stops being able to appear easily, or when it seems that he wants to add the program started newly as an additional menu. It explains for details later.

[0061] Next, the example of a display by the screen-display approach of this invention for notifying a retrieval result is explained. Drawing 7 is also an example of a result which searched the program in this way again. Of course, a menu can display various items not only in the item currently displayed on the example of a screen but in the form which included all the items from service respectively.

[0062] If a title, start time, and relevance have each broadcast media (for example, CATV, a tele circuit, a broadcast wave) about the program information applicable to a keyword and there are a program and relevance as shown in drawing 7 , it will be made a list with costs. Various display gestalten are possible, without also restricting these displays to the gestalt explained here.

[0063] In the example of this invention, an onscreen menu generates the database which carried out collating filing and it not only displays the thing from each service as it is, but unified the program information from two or more services, and the menu integrated based on this is displayed.

[0064] That is, the displayed menu may be displayed at the time of [both] following established [EPG] from the format uniquely customized within seamless TV, and each service provider.

[0065] Usually, all the EPG services obtained from EPG of each service are displayed

from this output integrated. The existing EPG service which is above usually includes the program display by the type exception, subtype (for example, film, news, etc.) exceptions (for example, a film: a comedy, a drama, mystery, etc.), etc. For this reason, in seamless retrieval, each of these types can also be incorporated as one of the subkeywords, and an effective activity is attained in unific (seamless) program retrieval over various kinds of services by giving a suitable weighting multiplier. [0066] Moreover, as shown, for example in drawing 11, into the program information-letters chapter, other alphabetic characters in a text change a color, and are displayed to turn out to be it clearly by the user -- the character string (henceforth, keyword candidate) which can serve as a screen top keyword for the continuing retrieval is classified by color.

[0067] Thus, since it is displaying that the inside of the description sentence of the program information screen is merely intuitively known by reversal or the color change in order to indicate that it is a keyword candidate, it is not necessary to display the menu screen for keyword selection etc. separately, and the effectiveness that a possession-in-positions effect activity can be carried out exists a viewing area. [0068] moreover, it will obtain, if a user becomes complicated at the time of selection and the content of each program information cannot fully be displayed, even if the display area of TV screen is restricted and it indicates much program information by the menu at once when carrying out a screen display of this retrieved program information, and there is a problem.

[0069] At this time, a user is able to carry out the following setting out to arbitration if needed, by narrowing down the number of cases displayed at once, to only one program information (or several [only] pieces) on a screen display, the user said mind or was not pleased in this invention -- simple binary decision -- carrying out -- ***ing (this actuation being also required to [, such as narrowing-down retrieval,] carry out a keyword addition -- but) That what is necessary is just to make a binary judgment whether it was pleased to each keyword, or it is not pleased This one by one by repeating quickly [learning and feeding back the decision result to last time each time] according to directions of a guide screen in this condition Without afflicting the head, quickly and automatically, there is no unreasonableness in selecting one from much program information, and a desired program can be chosen as it (navigation function).

[0070] moreover, efficiently [the time and effort which it is likely to ** have enough can be **ed, and] in case of the former as which a channel is tuned in in order to the last, all programs are sorted out in the head after that since it can understand a user on an experience that it is the program which wants to see the shown program information most if the assessment value operation by this invention was learned enough, and which determines whether it is the optimal program -- .

[0071] Moreover, a judgment whether it went into the mind over the displayed program itself at this time may be made on icon marks, such as a tearful face or an

angry face, when specifying by button grabbing on remote control, and it goes into the mind instead of an alphabetic character to a carbon button, and it is not pleased similarly, an icon mark for which an alphabetic character like a laughter face is clearly understood also to the small child who cannot read yet, and.

[0072] Moreover, as a result at the time of repeating re-retrieval which is described below after this, as shown in drawing 15 from drawing 11 , among the keyword candidate currently displayed, what the user already used before made the weighting multiplier reflect, for example, the mark of Ox etc. is attached.

[0073] However, like [in this case], in displaying the favorite information over a keyword, by the mere color change, the user has to know semantic attachment to that display as information, and a user's loads increase in number. Moreover, it is hard to employ the user who does not know that by the user who operates it for the first time.

[0074] According to this approach, it is made to display on the mark display itself, such as Ox, by the mark which can understand semantics intuitively, and the user only looked through the display and also tends to grasp a selection result.

[0075] Namely, assignment of O, x, etc. has semantics in itself [mark], and a user is effective in the ability to guess easily, even if preliminary information does not have automatically that O is a favorite keyword and the keyword whose x is not liking.

[0076] It can see, if a user wants to watch the program concerned immediately now after presenting of program information as a result of the above-mentioned retrieval, and the program of the program information chosen by pushing a termination carbon button, for example at the event is broadcast by the time amount. Moreover, what is necessary is to end a reservation carbon button push and after that or just to perform another following retrieval to reserve.

[0077] At this time, it is possible to display only the information on that day, or to be only a certain time zone and moon, or to search and to also make a certain broadcasting station and media restrict and display on arbitration according to liking.

[0078] However, when the program of the program information displayed when study was not enough, the time of about [which a keyword database newly began to create], is not pleasing, the priority by the number of keyword adaptation may not necessarily be in agreement with the priority for which a user asks, and, for this reason, becomes important [the readiness (operability) of re-retrieval] (display which is known by intuition also in the time of the first actuation).

[0079] First, what is necessary is not to perform re-retrieval to see other program information [be / in a favorite keyword / no current update etc.], and just to display the program information on degree ranking which carried out the retrieval sort just before.

[0080] By getting it blocked, a user will push it, if the following term carbon button which specifies the program [degree] information on remote control is prepared, or it is on a screen. "Program [degree] information" The focus of the part to specify is

carried out and the selection carbon button on remote control is pushed. Or if the above-mentioned retrieval initiation carbon button is pushed without newly carrying out the current update of the keyword, the program of degree ranking will be displayed. The latter is better in order not to increase the carbon button on remote control superfluously. However, it is dedication when the following re-retrieval actuation is taken into consideration. The "following term" and the "preceding clause" It is better to prepare a carbon button.

[0081] Thus, even if especially a user does not do keyword assignment etc. next, it evaluates to a program using the keyword information accumulated by the event, and the program automatically considered that a user is fond is usually displayed.

[0082] (Although the present display program is not pleasing, when a favorite keyword was and carries out additional assignment of it into the keyword candidate in the program information), program information re-retrieves at a high speed and the retrieval system which extracts and puts the program of a user request is needed to make additional (or new) selection and, re-search with liking of positive/negative still more nearly another keyword candidate in the program information displayed on the screen on the other hand.

[0083] Since according to this invention a user's favorite keyword (or it is not fond) (**) with which the user was concerned at the time of program selection makes a keyword database correspond to a weighting multiplier and is recorded on it after last time (are recording) The wait relation between considering such information using a valuation plan, i.e., primary parameter, and a subparameter etc., It always calculates dynamically and optimizes so that a user's past may carry out selection result reflection with a weighting parameter, and the program of a user request can be sponsored quickly.

[0084] In addition, a user's program selection result can be made to be able to feed back to optimization of a weighting multiplier, and various kinds of conventional well-known optimization techniques can be applied. For example, in order that a user may choose a favorite keyword (or it is not fond) to narrow down out of the keyword candidate currently displayed to turn out to be it — inverse video is carried out in the text (description sentence) of the program information displayed on the screen — he does a focus by the actuation using remote control etc., and presses a selection key.

[0085] If the cursor advance between the keyword candidates in a text is jumped in the nearest phrase from the keyword of a moved material by selection of the phrase covering [covering selection of the keyword in the line in a horizontal arrow head] space in a lengthwise direction, it is effective.

[0086] Moreover, it is also possible for flattery of cursor to be interlocked with and to scroll area which was not able to be displayed on a screen in this case (for example, for the part by which the focus is carried out with cursor to come to middle of the screen if possible like).

[0087] as behavior of the selection actuation at this time, a selection carbon button is

pushed once, for example -- ** -- as [understand / the applicable keyword location on a screen / it is alike, carry out toggle actuation with a favorite keyword, a keyword, selection cancellation etc. which are not liked, and / that assignment condition] -- "O" The mark and "x" "It being nothing (clear)". etc. -- it is made to display [that it is a mark and]

[0088] Moreover, not only one kind but a size and brightness may be changed also about this O mark and x mark, and two or more steps may be prepared according to a weighting factor. Or what understands intuitively favorite cases, such as highlighting and an italic character, and the case where that is not right for the keyword itself may be chosen, processed and displayed.

[0089] Apart from the selection key of the above-mentioned condition assignment, if the carbon button of the dedication for telling equipment about having chosen is prepared, jumping for the next keyword candidate automatically is also possible by pushing this carbon button.

[0090] Also about the status-display approach of this keyword, by being translucent and indicating by staining on a keyword, it was considered so that it might not become offensive to the eye [the explanatory note of a program (it has become as / become / about this color / the color scheme whose ordinary men sense natural the color when not being a color in favorite, and liking /) information text].

[0091] Thus, since the status display of a keyword is not offensive to the eye, when the keyword by which weighting ***** is carried out already appears in program information in a keyword database, the keyword condition (a user's taste) reflecting the weighting multiplier can be displayed, without causing trouble to reading through of the description sentence of program information.

[0092] Moreover, dedication for the assessment value of a program information screen to make it display over a low priority thing from the thing of high ranking on remote control The "following term" and the "preceding clause" If a carbon button is prepared, it is possible to set up and re-search a keyword over two or more program information screen.

[0093] In addition, **** between the ranking of such a program information screen utilizes and describes above the ten key on remote control. The "following term" and the "preceding clause" It is possible to also make ranking specify and jump direct as substitution of a carbon button. When there are few information screens (0-9), latter one is excellent in operability.

[0094] And a user pushes a "retrieval" carbon button, when a keyword to choose is already lost. If it does so, based on the keyword information set up above, the retrieval equipment by this invention will calculate an assessment value, and will present the program information on the maximum ranking.

[0095] Thus, a user can also discover a program to watch efficiently from a favorite keyword by choosing a keyword directly and repeating re-retrieval. In addition, since it can carry out like the case of former retrieval, the process from the behavior of the

selection actuation at this time to re-retrieval reevaluation is omitted.

[0096] Next, a series of actuation of these re-retrieval is explained using the flow chart of drawing 10. First, in step S13, a keyword to add by re-retrieval is chosen and it is inputted. Next, in step S14, all the program information applicable to a keyword is acquired like the above-mentioned retrieval out of the text of EPG offered from each service. And the program database (index) matched with the keyword is created. (The number of keyword content in each program information is also counted.)

Then, it sorts based on assessment value calculation and this by the performance index in ranking with a high (the first time has many counts) assessment value. (The first time is sorted for the time being, although it is not necessarily the ranking of a user request). And in step S11, the most significant or the program information of the 1st priority (up to the 2nd and the 3rd place) is displayed.

[0097] When not considering this as retrieval termination in the following step S12, it progresses to the following step S13. In addition, since it is the same as that of the case of above-mentioned drawing 9, the detail of the retrieval actuation in step S14 is omitted.

[0098] In this example, although the case where a keyword specification method makes menu selection of the keyword candidate in a program information screen is explained from a viewpoint which raises the actuation effectiveness of re-retrieval, it is not necessary to necessarily choose setting out of a keyword from the candidate in a screen, and, of course, it may carry out the direct input of the keyword which is not on a screen using input devices, such as remote control and a keyboard.

[0099] In addition, the carbon button arrangement to which the remote control unit by this proposal met the flow of actuation for example up and down is made like drawing 16, and this is effective in the ability to perform button grabbing which met the flow of thinking for the user.

[0100] In addition, the facilities of actuation of a user may be measured further, such as making only a candidate's carbon button which is on remote control and then should be operated turn on etc. Moreover, a former keyword is canceled depending on the case, there is a case where he wants to perform program retrieval newly, and a user is on remote control in this case. "New retrieval" The carbon button to specify is pushed or it is on a screen. "New retrieval" The focus of the part to specify is carried out and the selection carbon button on remote control is pushed.

[0101] At this event, the last main keyword is canceled as a main keyword (depending on the case), negative weighting may be carried out and you may register with a keyword database. It becomes new search mode, and inverse video, a flash, etc. carry out a search mode carbon button, and highlighting is visually carried out so that it may turn out to be it also on a screen (generally, a flash is offensive to the eye to what a mode condition etc. continues being comparatively displayed as over long duration, and has not turned to it).

[0102] The retrieval actuation which follows this is the same as that of the above. Moreover, since a program will advance rapidly if a program while broadcasting at current time in any case is not chosen early, high-speed retrieval is called for. For this reason, since it may be the program for which the user is asking even if the priority judged by the TV side is low, it displays preferentially, and it is under televising, and tunes in automatically in a program with the highest priority, for example, the right half of a screen is made to indicate by the retrieval result in a program and the left half.

[0103] Or it displays on a child screen and the frame is colored, and in order to tell that it is [current] under televising, you may carry out blinking a frame etc. Moreover, it is also possible by mounting the algorithm in Program ROM to give functions, such as to hold the program to storage automatically, when set as the object of program retrieval, and to carry out a time shift.

[0104] It cannot be overemphasized about these above setting out that it is variously changed by a user's arbitration. By repeating the above actuation, actuation of a user can be managed in a short time, and can discover a desired program quickly.

[0105] According to this search method, retrieval precision increases as the above-mentioned keyword database is substantial, and it is effective in the ability of a user's favorite information to begin to find it easily earlier.

[0106] Moreover, since it will be preferentially displayed from what has many keyword numbers of counts (what televising time amount is approaching in addition) according to this invention which the program information on a large quantity corresponds and spoils a user's selection ease if it refers to a more general keyword, it is effective in program selection time amount being shortened.

[0107] These retrieval results (progress is also included) make a keyword and a weighting multiplier correspond, are recorded as a user's favorite keyword database, and can be made to reflect in next retrieval as an auxiliary keyword for information narrowing down.

[0108] Moreover, by accessing a thesaurus database, by using the ambiguous similar word about a retrieval keyword as an exchange keyword, retrieval precision is raised and, according to this invention, it is effective in shortening retrieval time.

[0109] In addition, in this example, although the thesaurus database is given to the flash ROM in TV equipment, it may let uphill circuits and the telephone lines, such as CATV, pass, an external database may be accessed, and it may process, or it may download the newest information from an external database, and may rewrite information.

[0110] Moreover, it will be World, if an immense quantity of contents generally exist on the Internet, two or more search engines exist to these and it uses, combining these well. Wide It is effective for the favorite contents retrieval on Web.

[0111] Then, the program search method by this invention is World, without being limited to a program. Wide Retrieval viewing and listening according to a favorite

keyword also to the contents on Web is possible.

[0112] however, in the retrieval currently performed on such a conventional personal computer In order to discover the favorite target contents out of huge information the search engine by intuition and experience is advanced, even if it uses, and those without ** are required and it uses automatic patrol software Then, there is a problem that a user has to find out the information on target manually out of the huge contents by which automatic collection was carried out. Program retrieval is performed looking at TV and it is WorldWide in passing at the keyword of the liking for the program retrieval rather. The search method which such a personal computer user performs to the user who wants to view and listen also to the contents of Web is not suitable at all.

[0113] In addition, generally, about the retrieval keyword, assignment of AND, NOT, and OR had the problem that it could not search to each keyword reflecting a weighting multiplier, although many of search engines on the Internet were made.

[0114] According to the retrieval means by this invention, retrieval initiation is carried out from the top favorite keyword, and it becomes possible to carry out AND of the favorite keyword of degree ranking, and to narrow it down one by one until the retrieval number of cases is narrowed down a suitable number (1-several affairs).

[0115] Simultaneously, from the maximum ranking, the keyword which is not liked also carries out NOT assignment one by one, and is added. With this approach, it is World by doing so. Wide By the keyword of liking [the contents on Web], a user's favorite ranking becomes possible automatically with nature.

[0116] Moreover, if in charge of retrieval, the priority attachment means by this invention can also perform easily processing of excluding the same contents searched by multiplex among two or more search engines. The above approach is usable also as a search method on the Internet which used the personal computer.

[0117] Moreover, apart from EPG offered by the broadcast wave with a program, most current broadcast entrepreneurs have opened the homepage on the Internet, and, generally, in many cases, offer the information about a program.

[0118] If URL corresponding to this broadcasting station is offered beforehand, with the equipment by this invention (if the directory only for program information is known, in addition, it is desirable), this is also easily utilizable.

[0119] World in which retrieval by keyword also of this is carried out like the above, and it contains the keyword Wide A Web page is displayed. Moreover, if the command which can recognize the TV side was embedded in the html file concerned in this case, a user is able for click selection etc. to carry out the predetermined part of a html file, and to perform channel selection, ** automatic reservation, etc. automatically.

[0120] In addition, it can respond to acquisition of the contents on the above-mentioned Internet (html file etc.) by carrying the manipulation routine using a well-known algorithm currently used for automatic patrol software which is generally used

with the personal computer in Program ROM through the modem section.
[0121] it is used for below in this invention — < Formula [of a program assessment value] > It is shown.

* Performance-index $f()$ which calculates the retrieval valuation plan program assessment value V is V_n : Program assessment value n : Setting-out keyword number (class)

x

kx : x Generally it can describe as follows as weighting of the keyword of watch ranking.

$V = f(A_1, A_2, \dots, A_x, \dots, A_n, k_1 \text{ and } k_2, \dots, k_x, \dots, k_n, n)$

Moreover, p_x : Priority ranking ($p_x = 1, 2, \dots, i \leq n$)

cx : x As the number of appearance count upper limits of the keyword of watch ranking, it is kx . It can express $kx = f''(p_x, cx)$. — Example of expansion (1) (in the case [Wholly / in n pieces / A keyword] of the same priority)

x

— Example of expansion (2) (when n steps of priorities exist [a keyword] by n pieces)

x

— Example of expansion (3) (keywords are those with the count upper limit cx of an appearance in n pieces and n steps of priorities)

x

— Example of expansion (4) (a keyword is i ($< n$) at n pieces when a gradual priority exists)

It is i about A_i . The keyword group frequency of occurrence of watch ranking (count of an appearance) Carry out.

x

(Deformation 1)

k_i Variable-izing $k_i = f(c_i)$ As the weighting-factor fluctuation above was carried out according to the count of an appearance : this invention a radical [information /

relevant to the received program] -- carrying out -- a program and a means to build the informational display screen again, and said display screen -- using -- a program -- and -- or with a predetermined retrieval means, when informational selection is directed by the user said selected program -- and -- or the program based on the information which also acquired the related information in other media relevant to information, made the whole new related information, and gave predetermined priority to said new related information -- and -- or the program which displays an information selection screen -- and -- or it has an information selection screen--display means.

[0122] The retrieval which used the related information of the program doubled with liking of a user or information over between much media with the above-mentioned means is realizable. Under the present circumstances, a user does not need to be conscious of the difference in media. moreover, the program of the large range to liking -- and -- or information is acquirable.

[0123] Moreover, based on the received program related information, according to predetermined user directions, it is a predetermined retrieval means, and this invention acquires related information including other media, it is carried out based on the information which gave predetermined priority, is displayed, and acquires related information repeatedly according to feedback directions of a new predetermined user continuously from the program information screen of a predetermined display condition.

[0124] Moreover, automatic retrieval actuation of program related information is started with the keyword information accumulated from the program viewing-and-listening hysteresis of a user's past from carrier beam information in directions of a user, and its weighting multiplier, and this is coincidence or a thing which starts automatic retrieval actuation one by one about two or more channels and broadcasting stations of arbitration in which the object media, especially the reception which said keyword information to retrieval media decision and a control means can search [two or more] are possible. And distinction of whether program related information, retrieval agreement information, etc. are included in the media concerned is performed by object information distinction / collection means optimized for every object media by the program information collating distinction means for every retrieval media.

[0125] It is extracted, when program related information, retrieval agreement information, etc. were included and it is distinguished. Furthermore, a collating with other information etc. sake, By being temporarily stored in a storage means for every retrieval media, and collating the retrieval information from the media of these plurality The optimal information is extracted, and after automatic retrieval of program related information is completed based on the data contained in this retrieval information, a program list, related information, etc. are displayed on the screen of a display means.

[0126] With reference to such displayed information, if determine or reserve reception of a program, information is not saved or a user is not pleased, he operates it so that the next program candidate's information may be displayed. Moreover, in that case, the direct input of the keyword can be carried out, or it can choose from on a screen and the next program information retrieval can be performed.

[0127] In addition, also in the case of other environments (for example, for business), although a program retrieval system is described by the example of this invention as an example within an environment for home use, it may be easily recognized by this contractor.

[0128] Although this invention was shown as an embodiment about the approach and equipment for dealing with an external service menu by the domestic system and it was explained, it does not mean that this invention is limited to the detail shown here. Various alterations may be performed without being within the limits of the equivalent of a claim, and reversely, deviating from the pnuma of this invention.

[0129]

[Effect of the Invention] As mentioned above, as explained in full detail, according to this invention, broadcast service, program media, distribution contents, etc. cross between media, and a user can do program information retrieval from the unitary information source by the favorite common keyword on actuation, without being conscious of media.

[0130] Moreover, by the user side, without applying retrieval time and effort, liking of a user can be learned and put in a database and contents and the program a user wants to look at the information to origin automatically can be sponsored.

DESCRIPTION OF DRAWINGS

[Brief Description of the Drawings]

[Drawing 1] The block diagram showing the gestalt of the 1 operation which applied this invention to television channel selection equipment.

[Drawing 2] The block circuit diagram showing the example of a body hardware configuration of the television channel selection equipment of drawing 1 .

[Drawing 3] The block diagram showing the detail of the keyword storage section circumference of the television channel selection equipment of drawing 1 .

[Drawing 4] Drawing which is actually displayed on the screen of the display concerning the gestalt of operation of this invention and in which usually showing the example of a display of EPG.

[Drawing 5] Drawing which is actually displayed on the screen of the display concerning the gestalt of operation of this invention and in which usually showing the

example of a display of the general drawing of an EPG program screen.

[Drawing 6] Drawing showing the example of a display for persons of the general drawing of the continuation EPG initial screen actually displayed on the screen of the display concerning the gestalt of operation of this invention.

[Drawing 7] Drawing showing the example of a display of the general drawing of the retrieval information screen in seamless EPG actually displayed on the screen of the display concerning the gestalt of operation of this invention.

[Drawing 8] Drawing showing the example of a display of the detail drawing of the retrieval information part in seamless EPG actually displayed on the screen of the display concerning the gestalt of operation of this invention.

[Drawing 9] Flow chart drawing explaining retrieval actuation of the television channel selection equipment in the gestalt of operation of this invention.

[Drawing 10] Flow chart drawing showing the actuation at the time of re-retrieval of the program information in the gestalt of operation of this invention.

[Drawing 11] Drawing showing distinction of the keyword candidate in the description sentence in seamless EPG actually displayed on the screen of the display concerning the gestalt of operation of this invention.

[Drawing 12] Drawing showing distinction by the color of the keyword in the description sentence in seamless EPG actually displayed on the screen of the monitoring device concerning the gestalt of operation of this invention.

[Drawing 13] Drawing showing semantic attachment by the mark of the keyword in the description sentence in seamless EPG actually displayed on the screen of the monitoring device concerning the gestalt of operation of this invention.

[Drawing 14] Drawing showing semantic attachment by the magnitude of the mark of the keyword in the description sentence in seamless EPG actually displayed on the screen of the monitoring device concerning the gestalt of operation of this invention.

[Drawing 15] Drawing showing semantic attachment by the location of the mark attached to the keyword in the description sentence in seamless EPG actually displayed on the screen of the monitoring device concerning the gestalt of operation of this invention.

[Drawing 16] The schematic diagram showing the gestalt of operation of the control apparatus for performing program retrieval attached to the television channel selection equipment concerning the gestalt of operation of this invention.
